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PATENT SPECIFICATION



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COMPLETE SPECIFICATION

Improvements in Filling Hollow Chocolate Ware arranged in Moulds

I, MAX LOESCH, of 130/132, Zwickauer Strasse, Dresden-A. 27, Germany, a German citizen, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:

This invention relates to a method and device for filling hollow chocolate ware arranged in moulds.

Filled hollow chocolate bodies, such as pralines and the like, are produced by pouring a chocolate mass liquefied by heating into metal moulds open on top and removing the excess mass by tilting the moulds. When they have become solid, these hollow bodies are filled with a liquid like fruit juice, rum or liqueur, or with fruits, such as cherries or straw-berries, or the like. It is however not possible to determine the volume of liquid required for filling the hollow bodies, since the free inner space thereof varies in size. The volume of liquid differs for instance according to the temperature of the mass used in forming the bodies and the heat accumulating capacity of the mould. Furthermore, the fruit inserted in the hollow bodies differs in size and thus also contributes to causing variations in volume.

If hollow chocolate ware is filled mechanically, these differences in volume cause trouble in so far as equal mechanical dosing will produce overflowing in one mould whilst in another the desired level of liquid is not attained. While still open on top the hollow bodies are closed after filling by covering them with a layer of quickly solidifying liquid. If during the filling step filling material passes over the rim of the bodies, the rim and the covering mass cannot be intimately united. On the other hand, if the level of the filling material is too low, a rough, projecting edge will be produced which interferes with proper mechanical packing. In both instances a large amount of waste is unavoidable.

The present invention eliminates the defects of the known working methods by a method which is known per se in connection with the filling of bottles, jars

and the like and which consists in supplying the hollow bodies with an excess of liquid filling material and lowering the level of the liquid to the desired degree by means of a mechanically controlled suction device, the surface of the liquid being adjusted either during or after the filling step.

The device for carrying out the method according to the invention comprises a mechanically controlled suction device which enters the still open hollow bodies and draws off the excessively supplied filling liquid up to a predetermined level.

The suction apparatus is preferably arranged beside a filling mouthpiece within the clear inner range of the hollow body to be filled and enters the latter to a predetermined degree during the filling operation. It is of course also possible to dispose the suction apparatus and the filling mouthpiece at a distance from one another and intermittently to guide the hollow bodies one after another under and past the filling station and the suction apparatus.

To permit motion of the moulds a control device lifts the suction apparatus out of the hollow bodies after each suction operation. The lift of the control device is adjustable, so that the level of the liquid can be fixed according to the kind of hollow bodies used.

By distributing a plurality of filling mouthpieces and of suction devices over the width of the moulds several hollow bodies can be treated at the same time.

By way of example, the invention is illustrated in the accompanying drawing, in which

Figure 1 is a section of a portion of a chocolate mould provided with filling and suction means;

Figure 2 is a view of another embodiment wherein the filling means is separated from the suction apparatus; and

Figs. 3 and 4 show different forms of suction mouthpieces for use with viscous filling masses.

Referring to the drawing, on a path 1 a mould 2 is moved in the direction of the arrow by a conveyor, not shown. The mould 2 possesses depressions 3 arranged

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partly one behind the other and partly side by side. Each depression of a mould contains a hollow chocolate body 4 which in the constructions shown is provided 5 with a fruit 5.

Directly above the front row of the depressions 3 lies the filling mouthpiece 6 through which the filling mass 7 flows into the hollow chocolate bodies 4, the 10 supply of filling mass being regulated by a suitable device, not shown.

Immediately near the filling mouthpiece 6 a suction pipe 9 in a holder 8 is connected with a pneumatic suction piping in a manner not shown. By means 15 of a control device, not shown, the holder 8 with the suction mouthpiece 9 is raised and lowered periodically as the work progresses, Fig. 1 showing the member 9 20 in lowermost position and extending into the hollow body 4.

A plurality of filling mouthpieces 6 and of suction devices 9 corresponding to the number of depressions 3 of the mould 25 2 may be provided, in which case the mouthpieces 9 are preferably disposed in a common holder 8.

In the construction according to Fig. 2 two moulds 2, 2¹ are provided on the 30 path 1 and moved one behind the other under and past the filling and suction means. The moulds as well as the filling and suction devices are constructed as described above, with the difference, however, that the suction device 9 is spatially separated from the filling mouthpiece 6. Fig. 2 clearly indicates the operation of the device. The filling mouthpiece 6 is positioned above the mould A containing 40 a hollow body 4 which is already partly filled with the mass 7. The mould B shows to what extent the mass 7 is filled into the hollow body 4. It will be noted that there is some excess and the suction 45 device 9 kept in a controlled holder 8 begins to act only at the mould C. The level of the liquid is lowered thereby to the extent of the entrance of the lower edge of the mouthpiece into the hollow body 4. The mould D finally contains the correct amount of filling material.

The moulds 2, 2¹ and so forth are intermittently moved one after another under and past the filling nozzle 6 and 55 the suction device 9. The nozzles and suction devices may be arranged in rows side by side.

If thin liquid material is used for filling, a simple nozzle 9 may serve as suction device, but in case of viscous masses, the type of nozzles 10 or 11, as shown in Figs. 3 and 4, will be preferable. Both of these nozzles are provided 60 in front of their suction opening with a plate 12, 12¹ which rests upon the fill-

ing mass.

The invention can of course be embodied in other constructions besides the two shown and described.

It should be observed that it has previously been proposed to fill hollow chocolate bodies with a liquid by means of a nozzle which is subsequently used for withdrawing from the body all the liquid in excess of that required for coating the interior of the body with a layer of liquid, and to this method I make no claim.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:

1. A method of filling hollow chocolate ware arranged in moulds with liquid filling material, characterised in that the filling material is supplied in excess to the hollow ware and the surface of the filling liquid is lowered to the necessary degree by a mechanically controlled suction device.

2. A method as claimed in claim 1, characterised by the feature that the level of the liquid is adjusted during the filling operation.

3. A method as claimed in claim 1, characterised by the feature that the level of the liquid is adjusted after the filling operation.

4. A device when used for filling hollow chocolate bodies arranged in moulds with liquid filling material, characterised by a mechanically controlled suction means which enters the hollow bodies while they are still open and draws off the excessively supplied filling liquid to leave the filling liquid at a predetermined level.

5. A device as claimed in claim 4, characterised by the feature that the suction means is positioned in the immediate vicinity of the filling mouthpiece within the clear inner range of the hollow body to be filled and extends to a predetermined degree into the hollow body during the filling operation.

6. A device as claimed in claim 4, characterised by the feature that the suction means is spatially separated from the filling mouthpiece and that the hollow bodies to be filled are intermittently moved one after another under and past the filling and suction devices.

7. A device as claimed in claims 4 to 6, characterised by a control device for lifting the suction means out of the hollow bodies to permit the moving of the moulds.

8. A device as claimed in claim 7, characterised by the feature that the lift

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of the control device is adjustable.

9. A device as claimed in claims 4 to 8, characterised by the feature that a plurality of filling mouthpieces and of 5 suction means are distributed over the width of the moulds.

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[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 1

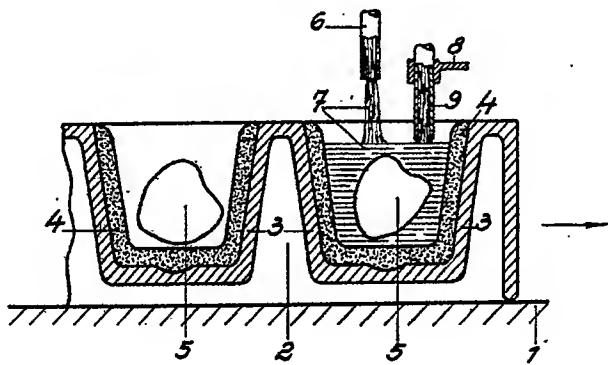


Fig. 2

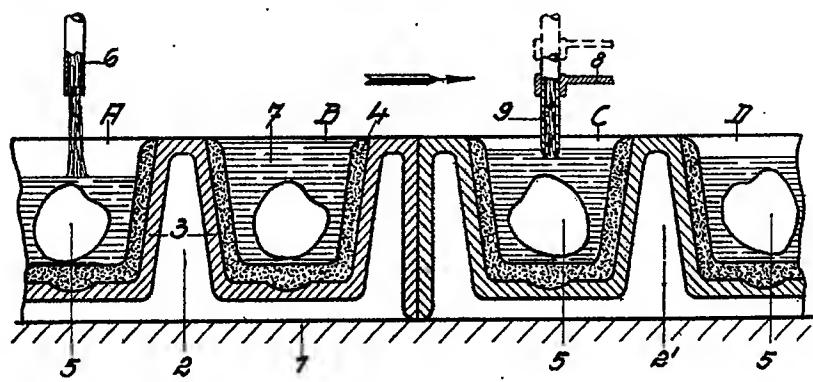


Fig. 3

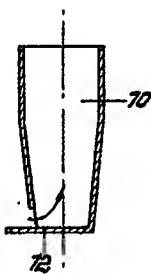


Fig. 4

